SOLUTION OF THE SEDIMENT TRANSPORT EQUATIONS USING A HIGH-ORDER DISCONTINUOUS GALERKIN METHOD

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Abstract

In this paper we present a numerical solution of the sediment transport equations in one horizontal dimension, based on a discontinuous Galerkin finite-element method. The continuous equations are discretized using nodal polynomial basis functions of arbitrary order in space on each element of an unstructured computational domain. To complete the discretization in space, we choose the numerical flux based in the local *Lax-Friedrichs* flux. A third-order explicit Runge-Kutta scheme is used to advance the solution in time. In spite of the local time steps the scheme is locally conservative, fully explicit, and arbitrary order accurate in space and time for transient calculations. Numerical results are shown for the one-dimensional with orders of accuracy two up to six in space.